



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200
Fax 613 632-5246

5150871
D6104-003

Job Sheet 189651



Part No: D6104-003

Job Qty: 12 pcs

Part Name: Round Billet, 17-4



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 1/29/19

Job Tracking No:

Due Date: 2/22/19

Created By: Chrisoula Tsimiklis

Type: Stock

Description:

Note: DWG REV B

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier	Sign-off
					Setup Hrs	Run Hrs		
100	Purchasing	12 pcs	2/22/19		0.00	0.00	Purchasing - 1	
							Purchasing - 2	M 1/30/19
							Purchasing - 3	
110	Packaging 2-1 - Receive - B4B	12 pcs	2/22/19		0.00	0.00	Packaging 2 - 1 - B4B	
							Packaging 2 - 2 - B4B	
							Packaging 2 - 3 - B4B	
							Packaging 2 - 5 - B4B	
							Packaging 2 - 4 - B4B	
							Packaging 2 - 6 - B4B	
							Packaging 2 - 7 - B4B	
							Packaging 2 - 8 - B4B	
							Packaging 2 - 9 - B4B	
							Packaging 2 - 10 - B4B	
							Packaging 2 - 11 - B4B	
							Packaging 2 - 12 - B4B	
							Packaging 2 - 13 - B4B	
							Packaging 2 - 14 - B4B	
							Packaging 2 - 15 - B4B	
							Packaging 2 - 16 - B4B	
							Packaging 2 - 17 - B4B	
							Packaging 2 - 18 - B4B	
							Packaging 2 - 19 - B4B	
							Packaging 2 - 20 - B4B	
							Packaging 2 - 21 - B4B	
							Packaging 2 - 22 - B4B	
							Packaging 2 - 23 - B4B	
							Packaging 2 - 24 - B4B	
							Packaging 2 - 25 - B4B	
							Packaging 2 - 26 - B4B	
							Packaging 2 - 27 - B4B	
							Packaging 2 - 28 - B4B	M 1/30/19

					Packaging 2 - 29 - B4B	
					Packaging 2 - 30 - B4B	
					Packaging 2 - 31 - B4B	
					Packaging 2 - 32 - B4B	
					Packaging 2 - 33 - B4B	
					Packaging 2 - 34 - B4B	
					Packaging 2 - 35 - B4B	
					Packaging 2 - 36 - B4B	
120 QC 6	12 pcs	2/22/19	0.00 0.00		QC 6 - 38	
					QC 6 - 42	
					QC 6 - 9	
					QC 6 - 68	DAS
					QC 6 - 61	61
130 Packaging 3-1 - Stock - B4B	12 pcs	2/22/19	0.00 0.00		Packaging 3 - 1 - B4B	9-89
					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Packaging 3 - 10 - B4B	
					Packaging 3 - 11 - B4B	
					Packaging 3 - 12 - B4B	
					Packaging 3 - 13 - B4B	
					Packaging 3 - 14 - B4B	
					Packaging 3 - 15 - B4B	
					Packaging 3 - 16 - B4B	
					Packaging 3 - 17 - B4B	
					Packaging 3 - 18 - B4B	
					Packaging 3 - 19 - B4B	
					Packaging 3 - 20 - B4B	
					Packaging 3 - 21 - B4B	
					Packaging 3 - 22 - B4B	
					Packaging 3 - 23 - B4B	
					Packaging 3 - 24 - B4B	
					Packaging 3 - 25 - B4B	
					Packaging 3 - 26 - B4B	
					Packaging 3 - 27 - B4B	
					Packaging 3 - 28 - B4B	
					Packaging 3 - 29 - B4B	
					Packaging 3 - 30 - B4B	
					Packaging 3 - 31 - B4B	
					Packaging 3 - 32 - B4B	
					Packaging 3 - 33 - B4B	
					Packaging 3 - 34 - B4B	
					Packaging 3 - 35 - B4B	
					Packaging 3 - 36 - B4B	
140 QC 21 - SA	12 pcs	2/22/19	0.00 0.00		QC 21 - SA - 21	DAS
					QC 21 - SA - 70	21
Part Op 100 - (Purchasing) Issue P/O: 042426 a)Description: S.S round billet b) Ø3.25" x 3.80" long d) Material: 17- Descriptions: 4PH Stainless steel (Ams 5643 or Aisi 630) e)One blank makes 2 parts 110 - (Receive & Inspect for Damage & Mat'l Certs) Ensure material certification is attached 120 - Ensure Material certification comply to Dwg D6104 130 - (Identify as per dwg & Stock Location: _____) LOCATION: MAT043 140 - (QC21- Final Inspection - Work Order Release)						

CTX 12 19-01-29

Job BOM				
Part / Item	Component Name	Quantity	Operation	Container
D6104-003P	17-4 SS Roundbar 3.25"Od	12 pcs (1 ea)	100-Purchasing	5150860
Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Purchasing	D6104-003P	12	0	0
Part Specifications				
Specifications could not be found.				

Plex 1/29/19 10:54 AM dart.tsimiklis.chrisoula

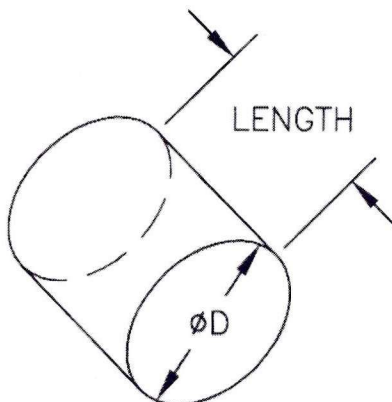


DESIGN [Signature]	DRAWN BY [Signature]	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED [Signature]	APPROVED [Signature]	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29 [Signature]

SPECIFICATION CONTROL DRAWING



MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO042426



Supplier: MEC002-VU
Metaux Castle
P.O. Box 4090 Stn A
Toronto
ON
M5W OE9 Canada

Ship To: 1270 Aberdeen Street
Hawkesbury
ON
K6A 1K7 Canada
Phone: 613-632-5200

PO No: PO042426

PO Date: 1/29/19

Due Date: 2/21/19

**Purchase Order
Revision:**

Revision Date:

Ship-To Contact: Tsimiklis, ChrisoulaPhone:

Via: Ground

Pymt Terms: Net 30

Freight Terms:

Special Comments:

E-MAILED
JAN 29 2019

Items

Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
1	189641	D6101-003P		7075-T7351 2X6.25X7.875 : Various STC's AS PER DWG D6101 REV. B SIZE: 7.875" X 6.250" X 2.00" THICK GRAIN DIRECTION ALONG 7.875" LENGHT MATERIAL: 7075- T7351 QQ-A-250/12 TOLERANCE AS PER QUOTE +.030"/-.000"	Firmed	-	2/21/19	20 pcs	0 pcs	20 pcs	\$38.82/pcs	\$776.40
2	189642	D6101-015P		Aluminum Billet : Various STC's As per Dwg D6101 Rev. B	Firmed	-	2/21/19	20 pcs	0 pcs	20 pcs	\$57.20/pcs	\$1,144.00
3	189647	D6101-017P		Aluminum Billet : Various STC's As per Dwg D6101 Rev. B	Firmed	-	2/21/19	16 pcs	0 pcs	16 pcs	\$32.64/pcs	\$522.24

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Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

PURCHASE ORDER

PO042426



Items												
Line Item	Job	Part	Supplier Part No	Description	Status	Account	Due Date	Order Quantity	Received Quantity	Balance	Unit Price (USD)	Extended Price
4 ✓ AT	189649	D6103-003P		Round Alum Billet : Various STC's AS PER DWG D6103 REV. B MATERIAL: 7075-T7351 AS PER QQ-A-225/9 SIZE: 3.500" X 12.500" LONG	Firmed	-	2/21/19	20 pcs ✓	0 pcs 22x	20 pcs AT 19/02/05	\$60.40/pcs	\$1,208.00
5 ✓ AT	189651	D6104-003P		17-4 SS Roundbar 3.25"Od : Various STC's	Firmed	-	2/21/19	12 pcs ✓	0 pcs 12x	12 pcs AT 19/02/05	\$26.70/pcs	\$320.40
6 ✓ AT	189652	D6104-011P		17-4 SS Roundbar 6.50"OD : Various STC's	Firmed	-	2/21/19	20 pcs ✓	0 pcs 20x	20 pcs AT 19/02/05	\$128.20/pcs	\$2,564.00
Grand Total:											\$6,535.04	

Order Notes

Terms & Condition of Purchasing(Suppliers) and Procurement Quality Clauses are an integral part of our AS9100 requirements. To learn in detail, please visit www.dartaerospace.com for further explanation.

Procurement Quality Clauses

- A005 RIGHT OF ENTRY
- A007 FIRST ARTICLE INSPECTION (FAI) BY SELLER, (DOCUMENTATION MAINTAINED BY SUPPLIER)
- A012 CHEMICAL AND PHYSICAL TEST REPORTS
- A016 PERSONNEL QUALIFICATION
- A017 RAW MATERIAL IDENTIFICATION (AS APPLICABLE)
- A026 CERTIFICATION OF MATERIAL CONFORMANCE
- A041 QUALITY MANAGEMENT SYSTEM
- A042 DART NOTIFICATION BY SUPPLIER
- A043 RETENTION OF QUALITY DOCUMENT
- A048 COUNTERFEIT PARTS AVOIDANCE, DETECTION, MITIGATION AND DISPOSITION PROGRAM
- A049 SUPPLIER AWARENESS

Plex 1/29/19 11:25 AM dart.tsimiklis.chrisoula

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 1 of 2

Shipment No:3816998

Ship From: A. M. CASTLE & CO. 2150 ARGENTIA ROAD MISSISSAUGA, ON L5N 2K7 CAN		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CAN		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 01-FEB-19	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 3816998-2	

Shipment Details	Final Destination Branch - TOR
-------------------------	---------------------------------------

Order No	Line No	Item No	Description				
5386716	2	42470.MO	3.2500.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 3.8 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643				
Purchase Order No		Part Number	Ordered Qty		Invoice Qty		
42426		YOUR ITEM NUMBER: D6104-003	12.00 PCS		12.00 PCS		
Details		ALL PAPERWORK MUST FOLLOW ORDER / CUSTOMER MUST RECEIVE AT TIME OF DELIVERY ALL MATERIAL MUST HAVE IDENTIFYING MARKINGS EX:HEAT #S Email P/s and certs to: clavoie@dartaero.com END USER: DART AEROSPACE END USE: COMMERCIAL AIRCRAFT PARTS					
Delivery No.	Mill/Source	Heat Number	Mech Id	PCS	Width (IN)	Length (IN)	Shipped Qty(LBS)
122531254	NORTH AMERICAN STAINLESS			12			107.1993

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Date Printed: 01-FEB-2019 02:14:16 PM



Castle Metals®

A. M. Castle & Co.

PACKING SLIP/
CERTIFICATE OF CONFORMANCE

Page 2 of 2

Reviewed by Authorized Castle Metals Representative:		Date:	Name: <i>Skalov</i>
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FEB 01 2019





North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 466579 2
Customer: 007209 001
Mail To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Ship To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Date: 12/05/2018 Page: 1

Steel: 630 (17-4)

Finish: HR

Corrosion:

Red Ratio: 7.0 :1

Your Order: 42425

NAS Order: PN 0098376 01 Heat Treat Code: 49,201

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/18, MACRO OK, AMS 5643 V
ASTM A564/13e1, AMS 2303/F, ASME SA564/13, ASTM F899/12B
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. AND AIR COOLED TO RT
UT PER API6A PSL3, ASTM A388/S1 CRITERIA, UT PASSED
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU.ROHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BJ8714 0		3.2500		1,039	144.00	2	1	

ANAB, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Chemical Analysis per ASTM A751/14a

NAS Heat	CM	C %	CB %	CO %	CR %	CU %	MN %	MO %	N %	NI %
930D	US	.022	.195	.06	15.31	3.31	.76	.060	.034	4.23
	P %	S %	SI %	TA %	TI %					
	.020	.0186	.55	.0050	.0020					

MECHANICAL PROPERTIES

Product Id	l o c a l	HB No.	Grain No.	Ferrite %	TS-900CAP KSI	YS-900CAP KSI	EL-900CAP % 4D	RA-900CAP %	RC-900CAP No.	FREQ. No.
BJ8714 0	R L	341.0	7.0	.14	200.13	178.33	10.53	45.44	43.0	.40



NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

KRIS LARK

12/05/2018



North American Stainless Canada Inc.
740 Imperial Road North
Guelph, ON N1K1Z3
Canada

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 466579 2
Customer: 007209 001
Mail To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Ship To:
CASTLE METALS
2150 ARGENTIA ROAD
MISSISSAUGA, ON L5N 2K7

Date: 12/05/2018 Page: 2

Steel: 630(17-4)

Finish: HR

Corrosion:

Red Ratio: 7.0 :1

Your Order: 42425

NAS Order: PN 0098376 01 Heat Treat Code: 49,201

PRODUCT DESCRIPTION:

Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1, ASTM A484/18, MACRO OK, AMS 5643/V
ASTM A564/13e1, AMS 2303/F, ASME SA564/13, ASTM F899/12B
SOL. ANNEALED @ 1900F MIN FOR 1 HR MIN. AND AIR COOLED TO RT
UT PER API6A PSL3, ASTM A388/S1 CRITERIA, UT PASSED
H900 MECH. PROPERTIES ARE CAPABILITY ONLY*

REMARKS:

COMPLIES W/REQUIREMENTS OF DFAR 252.225-7009 EU DIRECTIVE
2011/65/EU.ROHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG
IN USA FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Product Id	Skid #	Diameter	Size	Weight	-----Length-----	Mark	Pieces	Commodity Code
BJ8714 0		3.2500		1,039	144.00	2	1	

ANAB, ISO/IEC 17025, Certificate# L2323

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Chemical Analysis per ASTM A751/14a

NAS Heat	CM
930D	US

MECHANICAL PROPERTIES

Product Id	l o c	d i r	SEV. No.
BJ8714 0	R	L	.21

NAS hereby certifies that the analysis on this certification is correct. Based upon the results and the accuracy of the test methods used, the material meets the specifications stated. These results relate only to the items tested and this report cannot be reproduced, except in its entirety, without the written approval of NAS.

Technical
Dept. Mgr.

KRIS LARK

12/05/2018

MATERIAL RECEIPT INSPECTION FORM

MATERIAL: 56104-003
 DATE: 1/9/2019

PO / BATCH NO.: P0042426/S150871

MATERIAL CERT REC'D: Yes
 QUANTITY RECEIVED: 12x
 QUANTITY INSPECTED: 12x
 QUANTITY REJECTED: 0

THICKNESS ORDERED: 3.25"
 THICKNESS RECEIVED: 3.25"
 SHEET SIZE ORDERED: —
 SHEET SIZE RECEIVED: —

DESCRIPTION	NCR (Check Y/N)		COMMENTS
SURFACE DAMAGE	Y	☒ N	
CORRECT FINISH	☒ Y	N	
CORROSION	Y	☒ N	
CORRECT GRAIN DIRECTION	☒ Y	N	
CORRECT MATERIAL PER M-DRAWING	☒ Y	N	AMS 5643
CORRECT THICKNESS	☒ Y	N	
PHOTO REQUIRED	Y	☒ N	
CORRECT REF # TO LINK CERT	☒ Y	N	LT: 9300
CORRECT MATERIAL IDENTIFICATION	☒ Y	N	
CORRECT M# ON THE MATERIAL	☒ Y	N	
DOES THIS MATERIAL REQUIRE ENGINEERING SIGN OFF	Y	☒ N	
DOES THIS REQUIRE AN EXTRUSION REPORT	Y	☒ N	

CUT SAMPLE PIECE OF MATERIAL AND PERFORM A HARDNESS CHECK. RECORD RESULTS BELOW					
	HRC	HRB	DUR A	DUR D	WEBSTER
TYPE OF MATERIAL					
SIZE OF TEST SAMPLE					
HARDNESS / DUROMETER READING					

testers located in the Quality Office

QC 18 INSPECTION	ENGINEERING SIGNOFF (if required)
INSPECTED BY: <u>61</u> <u>9-89</u> DATE: FEB 05 2019	SIGNED OFF BY: _____ DATE: _____

Attach this inspection sheet with the corresponding material cert and remit to be scanned and received in